Integrating a Forest Environmental Services Locator in WEFES, a Web Based Explorer of Forest Ecosystems Services

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Introduction

Core to any land use decision making is the need for information, data, models, and knowledge. As long as the complexity of need expands, the difficulty of providing, managing and manipulating such knowledge expands with it. Web 2.0 developments - web applications that are user centered and facilitate participatory information sharing, interoperability, and collaboration - opens up the opportunity to use data in ways previously impossible and to develop systems and approaches that will allow users to work in different ways.

In 2009 an international collaborative project ´TRANZFOR´ (www.tranzfor.eu) enabled us to merge ideas into a Web Explorer of Forest Ecosystems Services under climate change (WEFES) allowing the development of a proof-of-concept for identifying ecosystem services (ES) and to evaluate the impact of climate change on a forest at any location on a map.

A further development, named FESL (Forest Environmental Services Locator) was targeted to develop a section under WEFES to **answer the reverse rationale**: Where are the locations on the map where certain productivity and environmental services coincide. This would allow users to target new forests at locations where ES are more needed.

Material and Methods

The base platform for FESL is the Web Explorer of Ecosystems Services, a prototype previously developed by Palma et al. (2012). This database contains datasets and forest growth models which are used by FESL.

FESL uses filtering algorithms in an MySQL database and detect the points matching the requirements. For accelerating the procedure, FESL only displays 100 points per click/run. However the user can zoom in/out and add another set of 100 points.

The web tool uses a mix of programming languages to manage server and client-side requests (HTML, Javascript, PHP, and Ajax) as well as Javascript libraries (DOJO 1.7) to deal with design interface and the GoogleMaps API to interact with New Zealand online-stored geographical information.

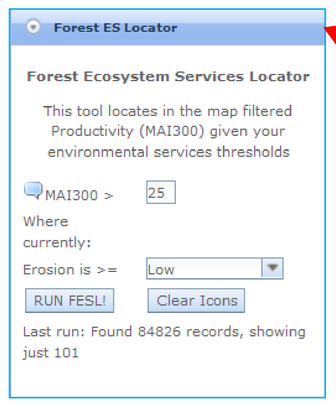
References

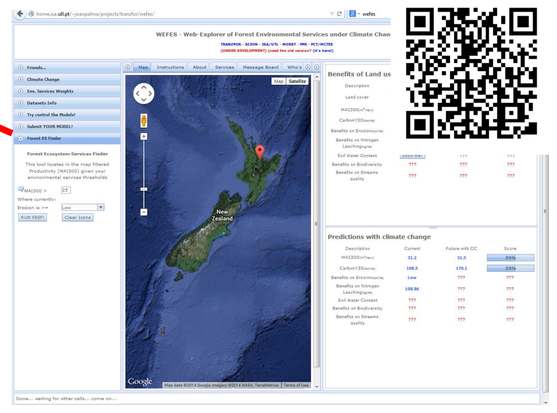
Palma JHN, Hock B, Palmer D, Payn T, Development of a Web Based Explorer for Forest Ecosystem Services (WEFES). International Conference on Tackling climate change: the contribution of forest scientific knowledge, 21 - 24 May, 2012, Tours, France

The FESL interface

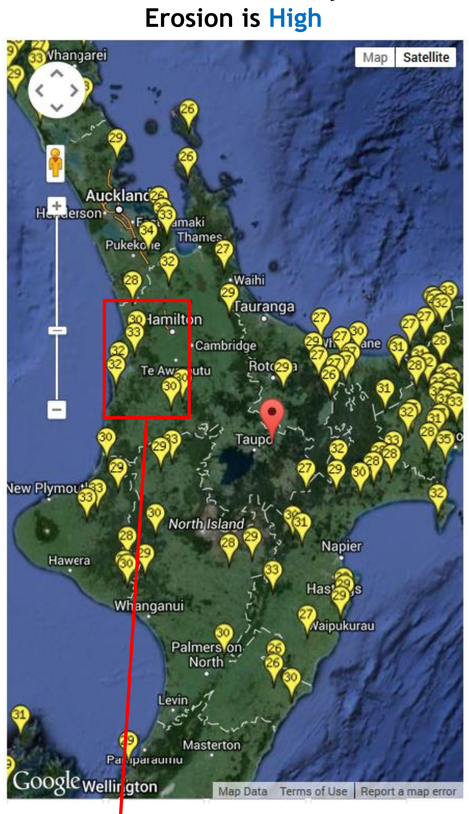
(www.isa.utl.pt/~joaopalma/projects/tranzfor/wefes)

Access WEFES here

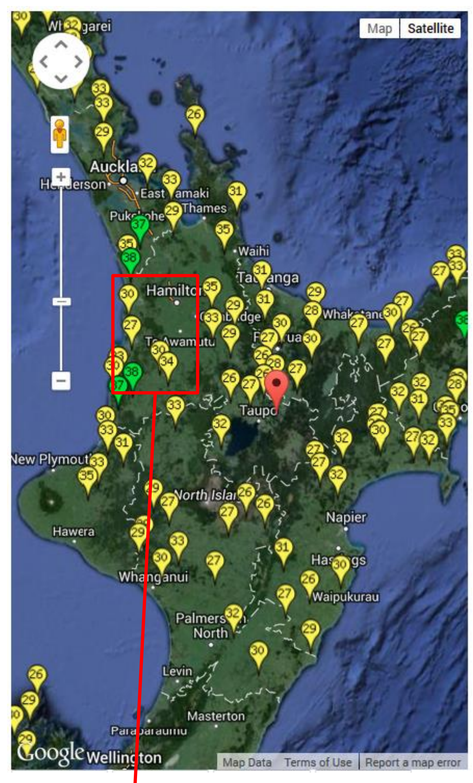


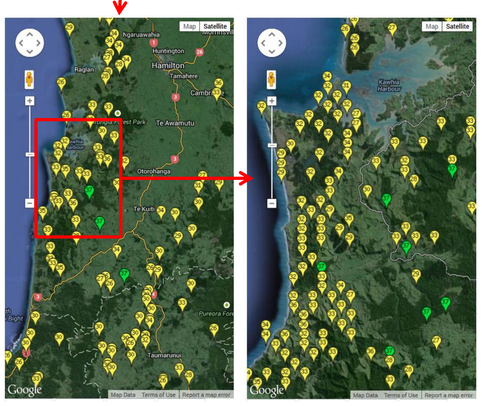


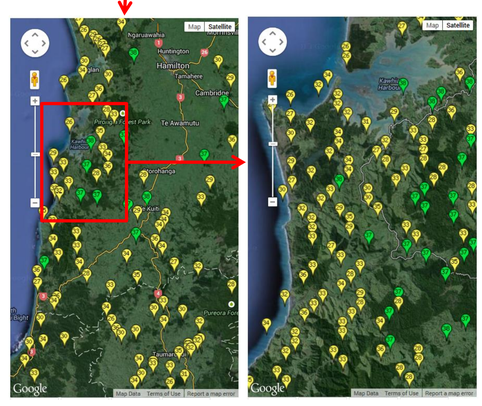
Locations where:
MAI300 > 25 m3/ha/year
Erosion is High



Locations where:
MAI300 > 25 m3/ha/year
Erosion is Moderate







The tool can zoom in while running FESL to increase the number of points matching the requirements defined by the user.

The color classification of the icons helps the user to locate areas with higher productivity, while respecting the threshold of the environmental service envisaged.

The methodology can be applied for more than two indicators and increase the provision of environmental services provided by forest plantations.

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